

ACC NR: AP7002308

SOURCE CODE: UR/0113/66/000/006/0128/0128

AUTHOR: Borchaninov, G. S.; Sokolov, N. I.; Vasil'yev, A. A.; Tarasov, V. I.;
Grudinskiy, P. G.; Ul'yanov, S. A.; Kuvshinskiy, N. N.; Fedoseyev, A. M.

ORG: none

TITLE: L. N. Baptidanov (Deceased)

SOURCE: IVUZ. Energetika, no. 6, 1966, 128

TOPIC TAGS: electric engineering personnel, academic personnel

ABSTRACT: L. N. Baptidanov died January 13, 1966. His working life was primarily dedicated to training of electrical engineering specialists. Soon after graduating from the Electrical Industrial Faculty of the Moscow Institute of the National Economy, Baptidanov began teaching at the Moscow Power Technical School. In 1934, Baptidanov began teaching at the All Union Correspondence Industrial Institute, then in 1946 he shifted to the All Union Industrial Academy of Machine Building, where he worked in the chair of electrical power stations. He was responsible for the creation of a model electrical station in the electrical stations chair of the Moscow Power Institute. Baptidanov was also very active as an author, writing such works as "Industrial Enterprise Substations", "Electrical Equipment of Electrical Stations and Substations", etc. From 1943 to 1946, Baptidanov worked as the Scientific editor for Electrical engineering at the State Power Literature Publishing House. [JPRS: 37,564]

SUB CODE: 09 / SUBM DATE: none

Cord 1/1

CZECHOSLOVAKIA

STANDART, G; RYLEK, M

1. Department of Chemical Engineering, Institute of Chemical Technology, Prague (for Standart); 2. Institute of Chemical Process Fundamentals, Czechoslovak Academy of Sciences, Prague-Suchdol - (for Rylek)

Prague, Collection of Czechoslovak Chemical Communications,
No 5, May 1966, pp 2159-2166

"Studies on distillation. Part 7: Rate of dissipation of energy in the foam layer on a plate."

ACC NR: AP7000439

(A,N)

SOURCE CODE: PO/0069/66/000/011/0992/0994

AUTHOR: Rylko, Stanislaw (Lt. col.; Master of pharmacology)

ORG: none

TITLE: Military field type chemical pharmaceutical laboratories

SOURCE: Lekarz wojskowy, no. 11, 1966, 992-994

TOPIC TAGS: pharmacology, pharmaceutical laboratory, military field clinic, chemical laboratory, *CLINICAL MEDICINE, MILITARY MEDICINE*

ABSTRACT: The organization, equipment, and functions of a military mobile chemical-pharmaceutical laboratory is described. The activities of such a laboratory consist of: analyses of drugs, especially their identification and purification by chemical and physical chemical means; and reporting to the Health Service on the suitability of a given drug. These services are required only under conditions of extended or improper storage of drugs. Bacteriological, giological, and radiological testing is not included in the activities of such laboratories. Due to the limited operations of the laboratories, its staff usually handles the storage and dispensation of medications. The equipment of a field laboratory must be mobile and adept to the variety of conditions encountered in a military environment. Although the general testing and prescription procedure is subordinated to the rules of Pharmacopea Polonica III, under specific conditions the Chief of Health Service is permitted

Card 1/2

ACC NR: AP7000439

to vary the dosages according to the analytical results and his own judgment.

SUB CODE: 06, 15 / SUBM DATE: 26Feb66

Card 2/2

COMMON ELEMENTS										COMMON VARIABLES INDEX									
1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
RYLOV, A. SA										A 53 i									
344. Diffraction of slow electrons by an Al single crystal. A. KYLOV. <i>J. of Exp. and Theor. Phys. U.S.S.R.</i>, 9, 6, pp. 670-680, 1939. In Russian. —The diffraction of slow electrons (10-150 V) from an Al crystal at a constant angle of incidence was investigated as a function of voltage. For a scattering angle of 26°, 14 diffraction maxima, and for angles 7° and 43°, 22 maxima, were found. The positions of these maxima could not be explained by the Bragg formula and are analogous to the so-called fine structure observed by Farnsworth [see Abstract 2844 (1936)]. The voltages at which the maxima occurred were found to be proportional to the squares of the odd numbers, and the difference of the wave vectors of the incident and diffracted beams was found to be independent of the angle of incidence for any given maximum. The effect of increasing the temperature of the crystal was studied up to 200°C, and found to decrease the intensity of diffraction. [See also Abstract 929 (1929).] D. S.																			
Sci. Res. Inst. Physics, Moscow State U.																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																			
13001 STWISLW										13001 BOWIRV									
140000 *2										131137 GNE QNV 151									

RYLOV, A.N.

Manufacturing standard hardness measures. Izv.tekh. no.5:23 My
'63. (MIRA 16:10)

RYLOV, A. P.

"Deformations of Linear and Angular Magnitudes in Certain Planes of a Space Mapped in Affine Projections," Tr. Severo-Kavkazsk. Gorno-Metallurg. In-ta, No 2, 1954, pp 39-60

The author studies the "affine" (parallel) projection of an arbitrary plane P onto a plane of mappings and examines the exponents of the deformations for various directions on plane P. He constructs a nomogram of deformations of the neighborhoods of plane P in the form of concentric similar ellipses. He states that his work is intended for application in mining technology. (RZhMat, No 7, 1955) SC: Sum.No. 713, 9 Nov 55

RYLOV, A.P., dotsent

Principles of parallel oblique-angled affine projections. Izv.
vys.ucheb.zav.; gor.zhur. no.3:53-62 '58. (MIRA 12:8)

1. Severo-Kavkazskiy gornometallurgicheskiy institut.
(Mine surveying) (Projection)

RYLOV, A.P., dots.

Selecting conditions of representation in oblique affine projections.
Izv.vys.ucheb.zav.; gor.zhur. no.7:14-22 '58. (MIRA 12:3)

1. Severokavkazskiy gornometallurgicheskiy institut.
(Mine surveying)

RYLOV, A.P.

Comment on M.I. Muzal'kov's article "Surface movement during the working of steep veins." Reviewed by A.P. Rylov. Gor.zhur. no.5:78 My '61. (MIRA 14:6)

1. Severo-Kavkazskiy gorno-metallurgicheskiy institut, Ordzhonikidze.
(Earth movements) (Mining engineering) (Muzal'kov, M.I.)

RYLOV, A.P.

Determining angles of shear in the Sadon deposit. Izv. vys.
ucheb. zav.; tsvet. met. 4 no.5:11-14 '61. (MIRA 14:10)

1. Severokavkazskiy gornometallurgicheskiy institut, kafedra
geodezii i marksheyderskogo dela.
(Sadon region—Faults (Geology))

RYLOV, G.M.; GOLUBOVA, G.A.

Study of the two-component mixtures of clay minerals by the
X-ray diffraction method and infrared spectroscopy. [Trudy]
Inst. geol. i geofiz. Sib. otd. AN SSSR no.32:51-55 '65.
(MIRA 18:9)

TEREKHIN, Pavel Ivanovich; PAVLOV, Vasilii Ivanovich; RYLOV, Gennadiy Vyacheslavovich; ZAKHAROV, Yuriy Vasil'yevich; SOKOLOV, A.I.;
otv. red.

[Service life and norms for the expenditure of spare parts
for mining machinery; a handbook] Sroki sluzhby i normy ras-
khoda zapasnykh chastei dlia gornykh mashin; spravochnik.
Moskva, Nedra, 1965. 428 p. (MIRA 18:4)

RYLOV, I. A.

"Prospects of Utilizing Computers for the Control of Blast Furnace Operations," by I. A. Rylov, Stal', No 6, Jun 57, pp 488-493

"The first attempt to apply computers to the automatic analysis of smelting operations in a blast furnace was made by Prof V. A. Sorokin, who derived an expression reflecting the thermal and charge balance of a furnace for steady-state operations. On the basis of this interpretation, the L'vov Polytechnic Institute has built an electronic analog computer.

"The computer would calculate, according to a formula, the yield of the furnace, the coal consumption per ton of pig iron, and the ore charge for each minute interval of operation. The data is transmitted to electronic potentiometers, which continuously indicate and record the magnitude of the computed values.

"However, the effort to utilize the information of such devices for the purpose of blast furnace control has not yielded any positive results.

"The cause for such a failure, in our opinion, is not so much the imperfection of the data transmitters (however, these imperfections lead to considerable errors), but is primarily the imperfection of the formula itself, which fails to take into consideration the transient thermal and aerodynamic processes of the blast furnace." (U)

Sum in 1451

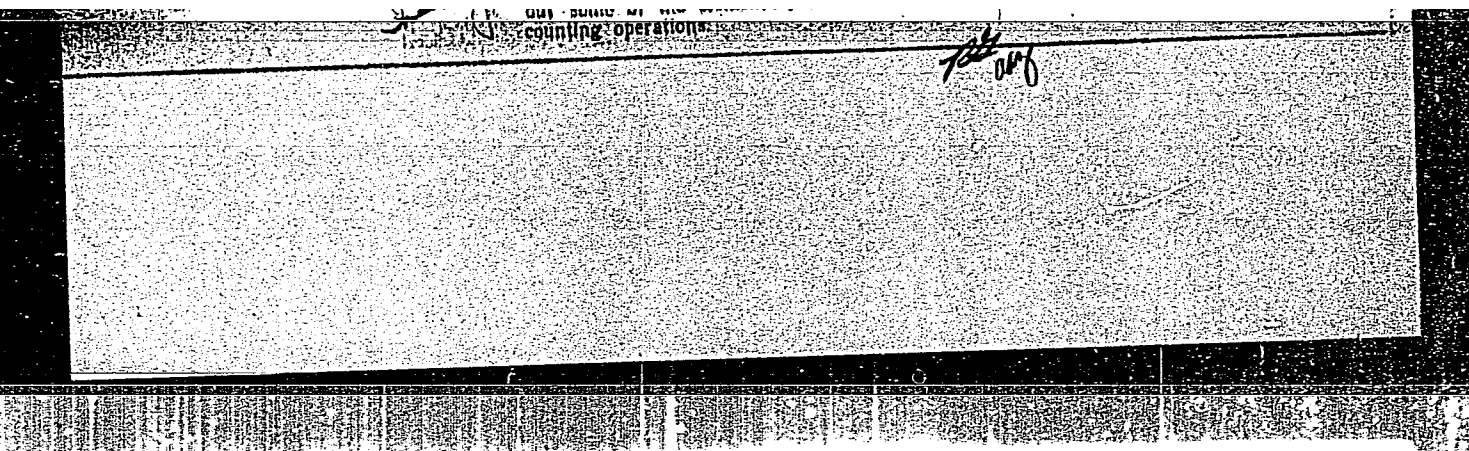
RYLOV, I. A.

STAL!
Vol 17, Nr 6, 1957

4E2C
2
I. A. RYLOV - Outlook for the Application of Calculating
Machines for the Blast Furnace Performance Automatic Control
In the complex automatic control system of the

"APPROVED FOR RELEASE: 06/20/2000

CIA-RDP86-00513R001446420014-5



APPROVED FOR RELEASE: 06/20/2000

CIA-RDP86-00513R001446420014-5"

RYLOV, I.A.

System of remote master control of blast flow regulators.
in blast furnaces. Metallurg 8 no.2:10 F '63. (MIRA 16:2)

1. TSentral'naya laboratoriya avtomatiki.
(Blast furnaces) (Remote control)

RYLOV, I.A., inzh.

Automatic control of the blast furnace process on the basis of statistical characteristics. Stal' 23 no.7:588-593 JI '63.
(MIRA 16:9)

1. TSentral'naya laboratoriya avtomatiki.
(Blast furnaces) (Automatic control)

RHLOV, I. Ye.

"Increasing the Effectiveness of Copulation on the Horse-Breeding Kolkhozes by Means of Preliminary Evaluation of the Copulations and Double Mating." Cand Agr Sci, Leningrad Agricultural Inst, Min Higher Education, Luga, 1954. (KL, No 7, Feb 55)

SO: Sum. No. 631, 26 Aug 55-Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

BUDNIK, N.M., kand.tekhn.nauk; RYLOV, L.A., inzh.

Use of VKG-100A and VKG-100M cuprous oxide rectifiers for feeding
the welding arc. Svar. proizvod. no. 4238-39 Ap '61. (MIRA 14:3)

1. Rostovskiy-na-Donu institut sel'khoz mashinostroyeniya.
(Electric current rectifiers)
(Electric welding)

RYLOV, L.A., inzh.; BUDNIK, N.M., kand. tekhn. nauk; SAPOV, P.M., inzh.;
NEGODAYEV, V.A., inzh.

Characteristics of the resistance welding of phosphated steel.
Trakt. i sel'khoz mash. no. 11:41-43 N '65. (MIRA 18:12)

1. Rostovskiy institut sel'skokhozyaystvennogo mashinostroyeniya
(for Rylov, Budnik). 2. Rostovskiy zavod sel'skokhozyaystvennogo
mashinostroyeniya (for Sapov, Negodayev).

PETROV, G. I.; ANTOV, L. F.

Comparative investigation of the effect of the welding heat
cycle on the properties of certain low-alloy steels. Trudy
LPI no.245:66-76 '65. (MIRA 18:8)

RYLOV, I. I., Inzh.

Manlog separable cover. Inzh. prodav. n. 7145 07 '65.

(MIRA 26:8)

RYLOV, N.N.

Fagot method of bending and drying ski lumber. Der.prom.4 no.5:
23-24 My'55. (MIRA 8:10)

1. Kirovskiy derevoobrabatyvayushchiy kombinat
(Lumber--Drying) (Ski and skiing)

RYLOV, N.N., inzh.

Equipment for impregnating skis with the PK preparation. Der.prom.
8 no.3:18-19 Mr '59. (MIRA 12:4)

1. Kirovskiy derevoobrabatyvayushchiy kombinat No.1.
(Skis and skiing)

RYLOV, N. I.

Volga-Don Canal

Tasks of mastering goods-traffic along the Volga-Don canal Rech. transp. 12 no. 2, 1952.

Monthly List of Russian Accessions, Library of Congress, August 1952. Unclassified.

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
Apparatus for the manufacture of Jeum. P. D. Rykov and R. K. Zelberikh. Russ. 51,001, Aug. 31, 1957. Construction details.																																																			
ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION																										SIGNATURE																									
MATERIALS INDEX																										SIGNATURE																									

RYLOV, I., inzh.

Automatic control in blast-furnace processes. Radio no.1:
7-8 Ja '60. (MIRA 13:5)
(Radio in industry) (Blast furnaces)

Rylov, I. A.
AUTHOR: Rylov, I.A. (Engineer)

133-6-2/33

TITLE: Possibilities of application of computers for an automatic control of a blast furnace. (Perspektivy ispol'zovaniya vychislitel'nykh mashin pri avtoregulirovani khoda domennoy pechi).

PERIODICAL: "Stal'" (Steel), 1957, No.6, pp.488-493 (USSR).

ABSTRACT: The problem of automation of blast furnaces is discussed in general terms. It is pointed out that at present some operations are already automatically controlled (blast temperature and its moisture content, top pressure, etc.); the number of such operations will increase in the near future, so that possibilities of a complex automation, i.e., coordination of the individual operations by computers should be possible. An attempt was made to use a calculating system for an automatic analysis of the blast furnace process as a whole. Prof. A. Sorokin derived an equation (not given) reflecting heat and material balances on the basis of which the L'vovskiy Polytechnical Institute designed and built an analogue computer (no details given) which was continuously calculating the output of furnace per minute, carbon rate and burden rate. However, an attempt to use these data for the control of a furnace was unsuccessful, probably due to deficiency of the formula

Card 1/2

Possibilities of application of computers for an automatic control of a blast furnace. (Cont.) 133-6-2/33

which did not take into consideration factors reflecting thermal and aerodynamic operating conditions of the furnace. The lack of a single mathematical relationship reflecting statics and dynamics of the process hinders its description which in turn make the use of computers in the scheme of automatic control of the furnace difficult. Main parameters which can be used for the control of the furnace (A) and main parameters characterising the furnace operation (B) are given in table form and are discussed in some detail. Graphs describing normal operation, tight working and the transition from tight to normal operating are given in Figs.1, 2 and 3 respectively. As an example a logical scheme of the programming of the operation of a calculating installation in the system of the automatic control of furnace operation is outlined (Fig.4). It may prove advisable to use a combined system incorporating digital and analogue computers. There are 4 figures and 1 table.

ASSOCIATION: TsLA.

AVAILABLE: Library of Congress

Card 2/2

RYLOV, I.A.

Transducer of gas pressure in blast furnaces. Biul.TSIICHM
no.9:41-44 '60. (MIRA 15:4)

1. TSentral'naya laboratoriya avtomatiki.
(Blast furnaces) (Transducers)

SOV/84-59-11-44/66

AUTHOR: Rylov, L.

TITLE: Attention of Aeronautical Information

PERIODICAL: Grazhdanskaya aviatsiya, 1959, Nr 11, p 22 (USSR)

ABSTRACT: The author criticizes shortcomings in the operations of the Gruppya aeronavigatsionnoy informatsii i reglamentov svyazi (Group for Aeronavigational Information and Communications Regulation) created at TsUMS GUGVF over three years ago. It serves Soviet aircraft flying to foreign countries, and foreign aircraft flying to the USSR, providing them with needed information specific for the given country. The Letnoye upravleniye (Flight Service Administration) does not furnish air navigation charts, airfield sketches and diagrams for "breaking through the clouds" in time. The airports have no person responsible for aeronavigational information. The Upravleniye mezhdunarodnykh vozdushnykh soobshcheniy (Administration for International Air Communications) does not supply the group with a sufficient number of regulations ✓

Card 1/2

Attention of Aeronautical Information

SOV/84-59-11-44/66

(AIPs) and other aeronavigational documents. The Gosudarstvennyy nauchno-issledovatel'skiy institut GVF (State Scientific-Research Institute of GVF), and Aeroflot's Redizdat have only published the international aviation "Shch"-code, translated into Russian. It is time to compile and publish a dictionary of codes, abbreviations and symbols used by foreign aeronavigational and communications services. The preparation of such a dictionary should be done by GosNII, or by Aeroflot's Redizdat. ✓

Card 2/2

DYURGENOV, N.G.; MYLOV, L.A.; ISHCHEENKO, Yu.L.; TRACHENKO, V.A.;
BARILOV, O.A.; ZHIDKOV, A.I.; GRIGOR'YEV, G.G.

Using GSR-9000 generators for submerged arc welding.

Mashinostroitel' no.9:33 S '62.

(MIRA 15:9)

RYLOV, L.A., inzh.; BUDNIK, N.M., kand. tekhn. nauk

Spot welding of steel with a phosphate coating. Svar. proizv.
no.9:19-20 S '65. (MIRA 18:9)

1. Rostovskiy-na-Donu institut sel'skokhozyaystvennogo
mashinostroyeniya.

RYLOV, L.I.

Gating systems for small steel castings. Lit. proizv. no.3:39 Mr
'61. (MIRA 14:6)

(Foundries--Equipment and supplies)

KUROCHKIN, P.D.; RYLOV, L.I.

Use of inoculation to increase the density of thin-walled iron casting.
Lit.proizv. no.4:42-43 Ap '63. (MIRA 16:4)
(Iron founding) (Cast-iron—Metallurgy)

KURCHKIN, P.D.; RYLOV, L.I.

Concerning All-Union State Standard 1412-54 "Grey iron castings."
Lit. proizv. no.4:42-44 Ap '64.

(MIRA 18:7)

RYLOV, N.I., tekhnik

Scraper type barker for thin and short-length pulpwood. Bum.prom.
38 no.2:26-27 F '63. (MIRA 16:2)

1. Nemanskiy kombinat. (Woodworking machinery)

RYLOV, N.N., inzh.; RYLOVA, L.P., inzh.

Combined nomograms for calculating pneumatic conveyor systems.
Der. prom. 13 no.6:11-13 Je '64. (MIRA 17:6)

RYLOV, S.I., brigadir kompleksnoy brigady

We make extensive use of machinery. Transp.stroi. 11 no.3:8
Mr '61. (MIRA 14:3)

1. Stroitel'no-montazhnyy poyezd No.242 Pechorstroya.
(Railroad construction workers)

RYLOV, S.P.

Formation of a snow cover in the region of the Novorybinsk hydrologic station. Trudy KazNIGMI no.18:70-77 '63. (MIRA 17:4)

ACC NR: AT7006976

SOURCE CODE: UR/2650/66/000/025/0141/0165

AUTHOR: Rylov, S. P.

ORG: none

TITLE: The distribution of snow cover in small drainage areas of the semiarid region of western Kazakhstan

SOURCE: Alma-Ata. Kazakhskiy nauchno-issledovatel'skiy gidrometeorologicheskii institut. Trudy, no. 25, 1966. Voprosy meteorologii (Problems in meteorology), 141-165

TOPIC TAGS: snow, topography, data sampling

ABSTRACT: An attempt has been made to show the relation of snow reserves to relief features of an area. A detailed snow survey has demonstrated that three or four traverses may supply as accurate information on snow reserves as a larger number. Computations on the basis of four give values within 1--3% of computations based on 46 traverses. Snow reserves in western Kazakhstan are related to average elevation. This is true of large and small areas, but the effect of relief is more noticeable for large areas. In small areas the snow on the divide is generally 5--10 mm thicker than on the slopes. It is 40--50 mm thicker on divides of large and medium streams than in the valleys, but maximal thicknesses are found in steep

Card 1/2

ACC NR: AT7006976

canyons (up to 960 mm). Less snow is found in more open valleys, but the reserves decline more rapidly in the steep canyons in years of moderate or light snow than in the more open valleys. The snow in these canyons and more open valleys may constitute 9--28% of the total reserve of the drainage area. When the reserves are computed by measurement of height and density at three points, the results may be 2--3 times the value obtained by a more detailed method. The coefficient of variation for snow reserves averaged over several years is 0.30--0.34, but the variation between different areas may range from 0.19 to 0.56 in a single year. The coefficient varies linearly with increase in reserves, snow transport, and dissection of the area. An approximate formula (of P. P. Kuz'min) gives rather satisfactory results, showing a deviation of 6--10% on the average and a maximum of 10--26%. Orig. art. has: 6 figures, 14 tables, and 3 appendices (tables).

SUB CODE: 04/

SUBM DATE: none/

ORIG REF: 015

Card 2/2

BARANOV, V.M., kandidat tekhnicheskikh nauk; RYLOV, S.V., inzhener.

Saving auxiliary time when machining surfaces with planing machines. Trudy Ural.politekh.inst. no.42:67-70 '55. (MIRA 9:8)
(Planing machines)

RED'KIN, V.Ye.; RYLOV, S.V.; SIROTENKO, A.P.

Manufacture of plastic machine-tool parts. Stan. i instr. 34 no.12:
20-21 D '63. (MIRA 17:11)

KATSNEL'SON, V.B.; RYLOV, V.A.; MANUYLOV, P.N., inzh., red.;
MORGULIS, L.S., ved. red.; GLAZOVA, G.D., tekhn. red.

[Experience in the automation of the turbine departments of
electric power plants] Opyt avtomatizatsii turbinnykh tsekhov
elektrostantsii. Moskva, Biuro tekhn. informatsii, 1961. 25 p.
(MIRA 15:12)

(Electric power plants)
(Automatic control) (Steam turbines)

RYLOV, V.A.

Parametric oscillator with nonlinear resistance under synchronous action of an external force. Vest. Mosk. un. Ser. 3: Fiz., astron. 18 no.2:75-84 Mr-Apr '63. (MIRA 16:6)

1. Kafedra teorii kolebaniy Moskovskogo universiteta.
(Oscillators, Electric)

L 13785-65 EWT(1)/EWA(h) Pm-4/Feb ASD(a)-5/ESD(gs)/ESD(t)
ACCESSION NR: AP4047861 5/0188/64/000/005/0031/0037

AUTHOR: Ry*lov V. A.; Likharev, K.K.

TITLE: Experimental investigation of transient processes in a parametric generator

SOURCE: Moscow. Universitet. Vestnik. Seriya 3. Fizika, astronomiya, no. 5, 1964, 31-37

TOPIC TAGS: parametric generator, transient process, semiconductor diode, generator capacitance

ABSTRACT: A method is described for obtaining curves for the establishment of oscillations, on the plane of slow u, v variables, by strobing the trajectories on the phase plane. The method is then used for an experimental investigation of transient processes in a semiconductor diode parametric generator. The abbreviated equation for capacitance change was solved on analog computer MN-7, the results being given in the form of projections of integral curves on the plane of slow u, v variables. Measurements were made to show the dependence of establishment of oscillation on detuning and on the nonlinearity. Starting up is oscillatory for a system with predominantly nonlinear reactance and is aperiodic when nonlinear

Card 1/3

L 13785-65

ACCESSION NR: AP4047861

resistance is considerable. The family of u, v -planes obtained from the analog computer is illustrated for the case of pure, nonlinear reactance and various degrees of detuning. It is pointed out that the basic systematics can be clarified by solving the inverse problem: from the form of the u, v plane conclusions can be drawn as to the limiting mechanism in various modes of operation of the generator. The u, v -plane is obtained by strobing the phase-plane. This is done by applying the oscillatory function and the same shifted through 90° to the deflection plates of an oscilloscope, the trace being brightened once per period to show only the x, y -points located on the $u-v$ -curve, the distance between successive points indicating the rate of change of u and v . The strobe-period is tied to the reference-signal, in this case the pumping voltage. A block-diagram of the circuit arrangement is shown. A balanced generator based on two D-809 diodes was studied in the frequency range 110-125 kc, the pumping voltage being modulated by rectangular pulses. The dependence of amplitude on detuning is shown and the family of integral curves on the slow-variable plane for 4 points of this curve is compared with that obtained from the analog computer. At small amplitudes, good agreement was found with focal singularities but at large amplitudes there was significant deviation from the theoretical (pure reactance) due to the strong effect of nonlinear conductivity. The method is also applicable in other cases such as frequency multipliers and dividers but is limited to a frequency of several Mc because the length of the strobe pulses must be somewhat less than the period.

Card 2/3

L 13785-65

ACCESSION NR: AP4047861

of oscillation for accurate phase determination. "The authors thank Prof. V. V. Migulin for interest and valuable advice." Orig. art. has: 5 figures and 4 equations.

ASSOCIATION: Kafedra fiziki kolebaniy, Moskovskiy Universitet (Vibration Physics Department, Moscow University)

SUBMITTED: 02Aug63

ENCL: 00

SUB CODE: EC, GP

NO REF SOV: 007

OTHER: 000

Card 3/3

ACCESSION NR: AP4040911

S/0109/64/009/006/0975/0982

AUTHOR: Ponomarev, Yu. V.; Ry*lov, V. A.

TITLE: Investigation of phase switching in a parametric oscillator

SOURCE: Radiotekhnika i elektronika, v. 9, no. 6, 1964, 975-982

TOPIC TAGS: oscillator, parametric oscillator, parametron, parametron oscillator phase switching

ABSTRACT: A synchronous exertion of an external force on a nonlinear-reactance-based parametric oscillator is considered. Stationary conditions, transients, and phase switching in a nonautonomous parametric oscillator are theoretically investigated. As an analytical investigation of transients is impractical, the pertinent truncated equations were solved on an MN-7 analog computer. The transients were observed on the Van der Pol variable plane, which permitted an evaluation of the time elements involved. It is found that: (1) Phase switching

Card 1/2

ACCESSION NR: AP4040911

in a parametric oscillator is possible when the external-force amplitude exceeds a certain threshold which depends on the external-force phase and the oscillator parameters; (2) An optimum phase exists at which the switching can be produced by a minimum external-force amplitude; (3) The switching time depends on the amplitude and phase of the external force; (4) With sufficiently high amplitudes, the phase may switch without transition into another zone. "In conclusion, the authors are thankful to V. V. Migulin for his valuable critical comments made during discussion of this work." Orig. art. has: 6 figures and 11 formulas.

ASSOCIATION: none

SUBMITTED: 11Mar63

ENCL: 00

SUB CODE: DP, EC

NO REF SOV: 005

OTHER: 001

Card 2/2

RYLOV, V.A.; LIKHAREV, K.K.

Experimental study of transients in a parametric generator. Vest.
Mosk. un. Ser.3:Fiz., astron. 19 no.5:31-37 S-O '64.

(MLPA 17:12)

1. Kafedra fiziki kolebanij Moskovskogo universiteta.

L 11081-66 EWT(1)/EWA(H)

ACC NR: AP6000561

SOURCE CODE: UR/0109/65/010/012/2167/2176

AUTHOR: Rylov, V. A.; Yelenskiy, V. G.

ORG: none

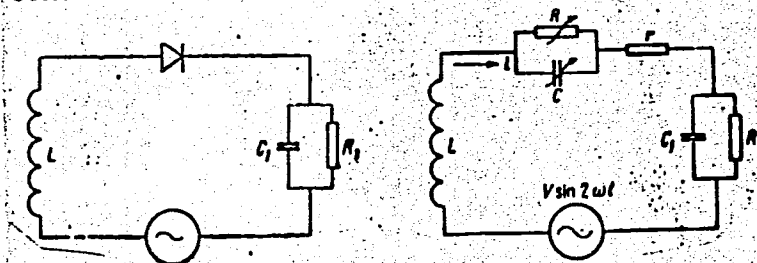
TITLE: Automatic bias and self-modulation in parametric oscillators

SOURCE: Radiotekhnika i elektronika, v. 10, no. 12, 1965, 2167-2176

TOPIC TAGS: parametric oscillator, parametron

ABSTRACT: The self-modulation of parametrons which arises with certain relations between circuit parameters in the presence of inertial nonlinearity is an undesirable condition. A third-order differential equation describing the phenomena in the

parametron circuit is set up and solved by a method of slowly varying amplitudes. The stability of its stationary solutions is investigated; in the first approximation, the effect of bias on the circuit attenuation and modulation ratio is neglected, and only the effect of bias on the circuit detuning is allowed for.



Self-biased parametron circuit (left) and its equivalent circuit (right)

Card 1/2

UDC: 621.373.93:621.376

L 11081-66

ACC NR: AP6000561

A formula is developed for the boundary of the self-modulation region; the effect of RC-filter time constant on self-modulation is studied. In the real semiconductor-diode parametron, the efficiency of self-modulation depends on the pumping amplitude: with a low pumping level, the amplitude characteristics lean leftward like in a constant-bias oscillator; with higher pumping levels, the characteristics lean to the right and the self-modulation begins. Stationary-amplitude-vs.-detuning curves ("amplitude characteristics") and two oscillograms taken from an experimental 100-kc self-modulating parametron are presented. "The authors wish to thank V. V. Migulin for discussing the results and valuable comments." Orig. art. has: 5 figures and 36 formulas.

SUB CODE: 09 / SUBM DATE: 01Jun64 / ORIG REF: 011

Card ^m 2/2

LIKHAREV, K.K.; RYLOV, V.A.

Excitation processes in a two-stage parametric generator.

Radiotekh. i elektron. 10 no.12:2244-2246 D '65. (MIRA 19:1)

1. Submitted January 19, 1965.

LEBENEV, S. N., RYLOV, V. I.

Silver Fox

For further reduction in the cost of raising foxes in state fur farms. Kar. i zver. 6,
No. 1, 1953.

Monthly List of Russian Accessions, Library of Congress
June 1953. UNCL.

RYLOV, Valeriy Nikolayevich; RYABCHIKOV, N., red.

[Safety engineering in drainage construction work]
Tekhnika bezopasnosti gidromeliorativnykh rabot. Minsk,
Urozhai, 1965. 42 p. (MIRA 18:6)

L 25678-66 EWI(1)/EWA(h)

ACC NR:AM6013862

Monograph

UR/

Kaplan, Aleksandr Yefimovich; Kravtsov, Yuriy Aleksandrovich; Rylov, Vladimir Nikolayevich

Parametric oscillators²⁵ and frequency dividers²⁵ (Parametricheskiye generatory i deliteli chastoty) Moscow, Izd-vo "Sovetskoye radio", 1966. 333 p. illus., biblio. 11,500 copies printed.

TOPIC TAGS: parametric oscillator, frequency divider, semiconductor diode

PURPOSE AND COVERAGE: This book is intended for specialists in the fields of radiophysics and electronics, for scientific and technical personnel, and for aspirants and students in schools of higher education concerned with the problems of parametric generation and the theory of nonlinear reactive parameter systems. The book presents the theory of parametric oscillators and frequency dividers with a nonlinear semiconductor-diode capacitance. Various lumped parameter generation systems-oscillators with one degree of freedom and oscillators with numerous degrees of freedom, both with multiple and non-multiple oscillation frequencies-are investigated. Part of paragraph 7 of chapter 1 was written by Yu. V. Grigor'yev and paragraphs

Card 1/4

UDC 621.373.93

L 25678-66
ACC NR:AM6013862

16

7 and 8 of chapter 2 were written by K. K. Likharev. The authors express their gratitude to Professor M. Ye. Zhabotinskiy, Professor V. V. Migulin, Professor S. M. Rytov, Professor R. V. Khokhlov, Yu. Ye. D'yakov, S. A. Akhmanov, V. P. Botavin, L. L. Goryshnik, Ye. M. Gershenzon, V. V. Grigor'yan, L. M. Kuzovkov, Yu. V. Ponomarev, O. K. Slavinskiy, V. S. Tsarenkov and V. S. Etkin.

TABLE OF CONTENTS:

From the authors -- 3

Introduction -- 5

Ch.I. Single-Circuit Parametric Oscillators --- 14

1. Diagrams of single-circuit oscillators -- 14
2. Semiconductor-diode nonlinear capacitance and approximation of its characteristics -- 16
3. Basic equations -- 26
4. Detuning mechanism for amplitude limiting -- 30
5. Amplitude limiting due to self-bias -- 47
6. Dissipative mechanism for amplitude limiting -- 58
7. Resonance-pumping-circuit oscillator -- 63
8. Transients in a single-circuit oscillator -- 90
- Effect of an external force on a parametric oscillator -- 116

Card 2/4

L 25678-66

ACC NR: AM6013862

0

9. Effect of an external force on a parametric oscillator -- 116
10. Experimental investigation of processes occurring in a single-circuit parametric oscillator - 144

Ch.II. Nonmultiple-Frequency Two-Circuit Oscillators -- 163

1. Basic equations -- 163
2. Stationary conditions under the action of a detuning mechanism for amplitude limiting -- 168
3. Other mechanisms for amplitude limiting -- 179
4. Two-circuit oscillator with a resonance-pumping circuit -- 185
5. Synchronizing a two-circuit oscillator with an external force-189
6. Energy relationships in a two-circuit oscillator -- 191
7. Experimental investigation of processes occurring in a two-circuit oscillator -- 204

Ch.III. Multiple-Frequency Two-Circuit Parametric Oscillators (Frequency Dividers) -- 211

1. Influence of higher combination tones on frequency relationship. Phenomenon of self-synchronizing -- 214
2. Motion equation. Steady state of self-synchronization and its general properties -- 233
3. Width of frequency-division band and conditions for maximum band width -- 248

Card 3/4

L 25678-66

ACC NR: AM60013862

4. Conditions for setting-up subharmonic oscillations and their stability -- 264
5. Conditions for automatic frequency pulling (self-modulation) -283
6. Action of external synchronous signal and the changes it produces in the phase of the subharmonic -- 289
7. Whole number and fractional multiplicity factors of frequency division. Frequency division into three parts -- 314
8. Experimental results -- 317

Bibliography -- 329

SUB CODE: 09/ SUBM DATE: 03Jan66/ ORIG REF: 070/ OTH REF: 020

Card 4/40da

S/075/61/016/001/002/019
B013/B055

AUTHOR: Rylov, V. S.

TITLE: A Flotation Method for Studying the Influence of Rubidium Impurities on the Density of KCl Crystals and the Determination of Rubidium in Potassium Salts

PERIODICAL: Zhurnal analiticheskoy khimii, 1961, Vol. 16, No. 1, pp. 14-21

TEXT: In the work presented, the author describes the use of the flotation method in the determination of rubidium in potassium salts, and in studies of the influence of rubidium on the density of KCl. The experimental technique of the flotation method has been described previously (Ref. 1). To determine the separation coefficient α for rubidium and potassium on crystallization from chloride melts, 5 samples of purified KCl were prepared. From these, α was estimated to 1.9. To 4 of these samples 5.0 - 0.005 at.% rubidium were added. The crystals were grown at 780°C from salt melts in a platinum crucible. It may be seen from Tab. 1 that rubidium impurities lower the flotation temperature of pure KCl crystals considerably. This means that the KCl density increases with the

Card 1/4

A Flotation Method for Studying the Influence S/075/61/016/001/002/019
of Rubidium Impurities on the Density of KCl B013/B055
Crystals and the Determination of Rubidium in
Potassium Salts

RbCl concentration. A data plot of the flotation temperature of the impurity crystals versus the order of their precipitation from the salt melts is represented in a figure. For calculations, the authors determined Δt , the difference between the flotation temperatures of two consecutive crystals, from the slope of the straight line obtained in this data plot, i.e., $\Delta t = \frac{\Delta T}{C/1 \text{ crystal}}$. Table 2 gives the mean values of ΔT (Table 1), the difference between the flotation temperatures of the pure and the impure KCl crystals and the true values ΔT_{eff} . The latter were calculated from ΔT values allowing for the thermal expansion of the flotation medium and the crystals. Basing on results of measurements and the aforementioned calculations, the authors determined the quantities Q , q , C_0 , Δt , and ΔT , where Q = weight of initial salt melt, C_0 = rubidium concentration in the initial salt melt and q = weight of precipitated crystal. These data showed that a decrease in rubidium concentration from 5.0 to 0.005 at.% increases the separation coefficient α from 0.74 to 0.9 (Tab. 3). Thus

Card 2/4

A Flotation Method for Studying the Influence of Rubidium Impurities on the Density of KCl Crystals and the Determination of Rubidium in Potassium Salts S/075/61/016/001/002/019 B013/B055

the transition of rubidium to the crystalline phase at low concentrations of RbCl involves a lower degree of separation than at higher concentrations. The density ρ of the KCl crystals increases linearly (Tab. 4) with increased RbCl concentration according to the expression $\Delta\rho = 0.6 \cdot 10^{-2} C'$, where C' is the concentration of rubidium in the crystal. It was found that rubidium ions cause KCl crystal lattice dilatation, but to a comparatively slight extent, so that, in spite of this, the density of the impurity crystal increases with increased RbCl concentration. The flotation method may be used to determine rubidium in potassium salts with an accuracy of up to $(1 \div 2) \cdot 10^{-3}$ at.%. If the function $\Delta T(C_0)$ is known, the determination is carried out in the following manner: the unknown sample is purified from foreign substances until the required conditions are fulfilled, and ~ 300 mg of the final product in the form of chloride are prepared. 4 to 6 KCl crystals are grown from the salt melt (Ref. 1). The flotation temperature of the grown crystals is determined relative to

Card 3/4

A Flotation Method for Studying the Influence of Rubidium Impurities on the Density of KCl Crystals and the Determination of Rubidium in Potassium Salts S/075/61/016/001/002/019 B013/B055

that of standard crystals or to a quartz float graduated by means of standard crystals. Finally, the concentration C_0 of rubidium is found by means of a calibration curve or from the expression $C_0 = C'/\alpha = (\Delta T/K) [1 - \beta_{\text{crystal}}/\beta_{\text{liquid}}]$. The author thanks G. Ya. Ryskin for discussion of the subject matter under study. Feyt and Kubiyezhskiy (Ref. 3) are mentioned. There are 1 figure, 4 tables, and 7 references: 5 Soviet, 1 German, and 1 US.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Physico-technical Institute of the Academy of Sciences USSR, Leningrad)

SUBMITTED: August 29, 1959

Card 4/4

S/057/61/031/007/014/021
B104/B206

AUTHOR: Rylov, V. S.

TITLE: Separation of potassium isotopes by evaporation of KCl

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 7, 1961, 843 - 844

TEXT: Similar to the separation of potassium isotopes by evaporation from a metal melt in vacuum, an isotopic effect may also be expected in the evaporation of KCl molecules from a salt melt. However, evaporation of KCl under ideal conditions is not possible, since the rate of evaporation of KCl in vacuo is already high at melting temperatures and, thus, the vapor pressure is also high. The separation factor under ideal conditions can be estimated by the formula $\alpha_{\max} = \sqrt{\mu_h / \mu_l} = 1.014$, as in the case of metallic potassium. μ_l and μ_h are the molecular weights of the lighter ($K^{39}Cl$) and the heavier ($K^{41}Cl$) compound. The experimentally determined separation factor was found to lie considerably below the calculated one. The tests were first conducted in vacuo ($\sim 10^{-2}$ mm Hg). Two tests were

Card 1/4

Separation of potassium...

S/057/61/031/007/014/021
B1C4/B206

made. The evaporated KCl condensed at the walls of a quartz tube under which there was a platinum crucible with the KCl melt. The melt had a temperature of 780 - 800°C. The rate of evaporation amounted to 1.0 - 0.8 g/cm².hr. A degree of separation of 1.5 was achieved in both tests. Condensate and residual melt were investigated for the change of their isotopic composition by the flotation method. No change of the isotopic composition was found. In order to reduce the rate of evaporation, tests were conducted in air at atmospheric pressure. For this purpose, the platinum crucible was put in a furnace which kept the crucible temperature within 780 - 800°C. The condensate was collected on the inner surface of a glass dome covering the crucible. In the first test, the fractions (initial KCl; residual melt; condensate) were submitted to a flotation analysis. The degrees of separation for each test are given in a table. The value ΔT denotes the difference of the flotation temperature of the KCl crystals obtained from two tests. Two to five analyses were made in each test. A mean value $\Delta T_1 = 0.010 \pm 0.002$ results from the table. As

indicated in a previous paper by the author (ZhTF, 29, 784, 1959), the isotopic concentration of K^{41} may be calculated from ΔT by the relation $\Delta C(\text{at.}\%) = 2.958 \cdot \Delta T(^{\circ}\text{C})$. From this, the relation $\Delta C_1 = 0.030 \pm 0.006$

Card 2/4

Separation of potassium...

S/057/61/031/007/014/021
B104/B206

follows. The separation factor is determined by the formula $\alpha = \Delta C / C \cdot (1 - 0.01 C) + 1$, where $C = 6.683$ at% is the content of K^{41} in natural potassium. It was thus established that during evaporation of KCl in air the residual melt from KCl becomes poor in lighter isotopes, the separation factor being $\alpha = 1.005 \pm 0.001$. Although the rate of evaporation is low in tests under atmospheric pressure, the conditions of evaporation are not ideal, since foreign gas (air) exists. Obviously, an α -value was obtained which is lower than the calculated one. There are 1 table, and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR,
Leningrad (Institute of Physics and Technology imeni
A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: October 10, 1960

Card 3/4

KONSTANTINOV, B.P.; RYSKIN, G.Ya.; RYLOV, V.S.

Rate of element exchange between lithium amalgam and KCl
aqueous solution. Zhur.fiz.khim. 36 no.8:1639-1645 Ag '62.
(MIRA 15:8)

1. Leningradskiy fiziko-tekhnicheskiy institut, AN SSSR.
(Amalgams) (Potassium chloride) (Electrochemistry)

RYSKIN, G.Ya.; RYLOV, V.S.

Separation of potassium isotopes by electrolysis on a mercury cathode and by crystallization of potassium chloride. Zhur. fiz. khim. 36 no.9:1854-1859 S '62. (MIRA 17:6)

1. Leningradskiy fiziko-tekhnicheskii institut AN SSSR.

S/076/62/036/009/005/011
B101/B102

AUTHOR: Rylov, V. S.

TITLE: Flotation method for analyzing the isotope composition of magnesium

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 9, 1962, 1979 - 2004

TEXT: Magnesium obtained silicothermally from MgO at 1150°C and 10^{-2} mm Hg was purified by sublimation in an iron container and was crystallized. So also was magnesium from the Alyuminiyevo-magniyevyy institut (Institute of Aluminum and Magnesium). The isotope composition was determined by flotation of 2-3 mm Mg crystals in mixtures of ethyl bromide (I) and chloro benzene (II). Since the Mg reacted with this mixture it was passivated by 1% $K_2Cr_2O_7$. The density of the flotation liquid comprising 55.97% by weight of I and 44.03% of II corresponded to the density of Mg^{24} . The density of the mixture comprising 58.72% of I and 41.28% of II to that of natural Mg, and the density of the mixture comprising 69.09% of I and 30.91% of II to that of Mg^{26} . The densities of these mixtures changed by only $2 - 3 \cdot 10^{-6}$ g/cm³ within 2 - 3 hrs. Their coefficients of thermal

✓

Card 1/2

Flotation method for ...

S/076/62/036/009/005/011
B101/B102

expansion at 20-30°C were respectively $979.6 \cdot 10^{-6}$, $980.0 \cdot 10^{-6}$, and $976.5 \cdot 10^{-6}$.

The density of natural Mg at 20°C was found to be $1.73782 \pm 0.00005 \text{ g/cm}^3$. The coefficients k in the equation $\Delta c = k\Delta T$ were calculated, where $\Delta T = T' - T''$ (T' and T'' being the flotation temperatures of magnesium crystals of different compositions) so that $\Delta c = c' - c''$ (c' , c'' = concentrations of the Mg isotopes). Results: $\Delta c_1 = -1.274 \Delta T$ for Mg^{24} ; $\Delta c_2 = 0.352 \Delta T$ for Mg^{25} , $\Delta c_3 = 0.922 \Delta T$ for Mg^{26} . A check of the method with enriched Mg showed good agreement with the values obtained by mass spectrometry. The accuracy is $\pm (0.02 - 0.07) \text{ atom\%}$. The analysis takes 11-12 hrs; in serial work it can be reduced to 5-6 hrs. There are 4 figures and 3 tables. ✓

ASSOCIATION: Leningradskiy fiziko-tekhnicheskii institut AN SSSR im. A. F. Ioffe (Leningrad Physicotechnical Institute imeni A. F. Ioffe of the AS USSR)

SUBMITTED: March 6, 1961

Card 2/2

RYSKIN, G.Ya.; RYLOV, V.S.; TRUNOV, V.A.

Rate of isotopic exchange of potassium between potassium amalgam
and aqueous solution of KCl. Zhur.fiz.khim. 36 no.10:2126-2131
O '62. (MIRA 17:4)

1. Leningradskiy fiziko-tehnicheskii institut imeni A.F.Ioffe.

PUGACHEV, Yu. I.; RYIOV, V. S.

Separation of magnesium isotope in vacuum distillation.
Zhur. fiz. khim. 37 no. 3:691-693 Mr '63. (MIRA 17:5)

1. Akademika nauk SSSR i Leningradskiy fiziko-tehnicheskoy
institut imeni A.F. Ioffe.

KRAVCHENKO, A.V.; RYLOV, V.S.

Separation of magnesium isotopes in the system magnesium
amalgam - aqueous solution of $MgCl_2$. Zhur. fiz. khim. 37 no.4:
910-912 Ap '62. (MIRA 17:7)

1. Leningradskiy fiziko-tekhnicheskij institut AN SSSR imeni
A.F. Ioffe.

KIRILLOV, A.S.; RYLOV, V.S.

Sources of magnesium in carbonatites. Zap.Vses.min.ob-va. 92
no.2:228-231 '63. (MIRA 16:5)

1. Leningradskiy gosudarstvennyy universitet i Leningradskiy
fiziko-tekhnicheskoy institut AN SSSR.
(Magnesium) (Rocks, Carbonate)

KRUSHINSKIY, L.V., doktor biologicheskikh nauk; MERKUR'YEVA, Ye.K., kandidat sel'skokhozyaystvennykh nauk; IZRAILEVICH, I.Ye., kandidat veterinarnykh nauk; IL'INSKIY, S.A., veterinarnyy vrach; IN'KOV, H.M., veterinarnyy vrach; STOGOV, K.S., veterinarnyy vrach; VANICHEV, M.I., veterinarnyy vrach; MAZOVER, A.P., veterinarnyy vrach; ORLOV, A.P., veterinarnyy vrach; RYLOV, V.V., veterinarnyy vrach; SAKHAROV, N.A., veterinarnyy vrach; DIKAREV, P.Y., redaktor; MUSHTAKOVA, L., tekhnicheskii redaktor

[The working dog; manual for training specialists in raising work dogs] Sluzhebnaia sobaka; rukovodstvo po podgotovke spetsialistov sluzhebного sobakovodstva. Moskva, Gos. izd-vo selkhoz. lit-ry, 1952. 616 p. (MIRA 10:1)
(Dogs--Training)

KRUSHINSKIY, L.V.; FLESS, D.A.; RYLOV, V.V.

Dog scent and its role in trailing. Biul. MOIP. Otd. biol. 65 no.1:
127-134 Ja-F '60. (MIRA 13:7)
(DOGS) (SMELL) (TRACKING AND TRAILING)

RYLOV, Ye. Ye.

RYLOV, Ye. Ye. -- "Electronographic Investigation of Polymeric Hydrocarbons and Their Mixtures." Sub 4 Feb 52, Order of the Labor Red Banner Sci Res Physicochemical Inst imeni L. Ya. Karpov. (Dissertation for the Degree of Candidate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

68. Electron-diffraction studies of polymers. E. E. Rylov and V. L. Kasov. *Zhur. Fiz. Khim.*, 1963, 37, 578-87; *Chem. Abs.*, 1964, 48, 7423-4; *Chem. Tech., Berlin*, 1963, 6, 468d. The electron-diffraction patterns of three mixtures, polyisobutylene-natural rubber, polyisobutylene-polyethylene, and gutta percha-natural rubber in film form were investigated. The unit cells of both polyisobutylene and natural rubber are orthorhombic, and a 1:1 mixture of the two, stretched to 1,400%, gives diffraction spacings coincident with the spacings of the pure components. Mixtures of the second type in the unstretched state show the diffraction pattern of pure polyethylene; the behaviour of stretched samples depending on their composition. For example, polyethylene-isobutylene (1:0), stretched up to 800%, gave diffraction spots of polyisobutylene, and gave diffraction rings of unstretched polyethylene; 4:6 mixtures give up to 700% elongation an unstretched

polyethylene pattern of large arcs of crystallites, and the pattern of stretched polyisobutylene and compositions of 40% polyethylene or more show only the pattern of stretched polyethylene on elongations up to 800%. Polyisobutylene and polyethylene are not miscible, even above the m.p. of polyethylene. In undrawn gutta percha films, and mixtures of gutta percha and natural rubber, rings with hk indexes are observed only, indicating that the direction of the c -axis is perpendicular to the surface of the film. Stretched mixtures of gutta percha-natural rubber (1:0) on 800% elongation give rings of unstretched gutta percha, and spots of stretched rubber; 4:6 mixtures show strong gutta percha rings and the remaining consist of arcs similar to weakly stretched samples of pure gutta percha; and mixtures of larger gutta percha content show only the gutta percha reflections. Even in a 1:1 mixture, only the 002 and 004 reflections of rubber are still weakly noticeable. 234513

RYLOV, H. E. E.

125. Electron-diffraction studies of polymers hydrocarbons. Polyethylene. E. E. RYLOV, V. L. KARPOV, and V. A. KARGIN. *Zhur. Fiz. Khim.*, 1953, 27, 572-8; *Chem. Abs.*, 1954, 48, 7335. The electron diffraction analysis of unstretched polyethylene films prepared by film casting of a 0.5% solution in ligroine on water at 80° to 85°, gave an orthorhombic unit cell, with only certain of the diffraction rings showing slight orientation effects. The unit cell for the stretched polyethylene is also orthorhombic with slightly different dimensions, the pattern in this case showing layer lines of diffraction spots and arcs, some of the arcs being symmetrical and some unsymmetrical with respect to the layer-line spots. On stretching, polyethylene crystals align themselves with their *c*-axes in the direction of stretch, and *a* and *b* axes in random directions. This produces the layer-line spots. The arcs are due to the alignment of 011 planes perpendicular to the direction of stretch; crystallites of this type are not too well orientated and give the diffraction arcs based on the unit cell of unstretched polyethylene.

352D24.34512

✓
ARZHAKOV, S.A.; RYLOV, Ye.Ye.; SHTARKMAN, B.P.

Pressure sintering of powdered polymers. Part 1: Regions where
transparent specimens are obtained. Vysokom. soed. 1 no.9:1351-1356
S '59. (MIRA 13:3)

(Polymers) (Methacrylic acid) (Acrylic acid)

ARZHAKOV, S.A.; RYLOV, Ye.Ye.; SHTARKMAN, B.P.

Pressure sintering of powdered polymers. Part 2: Regions of true
compaction. Vysokom. soed. 1 no.9:1357-1360 S '59.

(MIRA 13:3)

(Polymers) (Methacrylic acid) (Acrylic acid)

ETLIS, V.S.; MINSKER, K.S.; RYLOV, Ye.Ye.; BORT, D.N.

Crystalline poly(vinyl chloride). Vysokom. soed. 1 no.9:1403-1406
S '59. (MIRA 13:3)

(Ethylene)

ARZHAKOV, S.A; RYLOV, Ye.Ye.; SHTAREMAN, B.P.

Effect of pressure on the softening temperature of polymers.
Vysokom. soed. 1 no.9:1438 '59. (MIRA 13:3)
(Polymers--Thermal properties)

GUZEYEV, V.V.; MOROZOV, V.I.; SHTARKMAN, B.P.; RYLOV, Ye.Ye.

Automatic instrument for the turbidimetric titration of polymer solutions. Vysokom.sped. 1 no.12:1840-1843 D '59.
(MIRA 13:5)

(Polymers)

Rylov, Ye. Ye.

81891

S/181/60/002/05/30/041
B004/B056

5.3831
AUTHORS:

Razinskaya, I. N., Rylov, Ye. Ye.

TITLE:

Some Problems of the Time Dependence of the Strength of
Organic Glasses ¹⁵

PERIODICAL:

Fizika tverdogo tela, 1960, Vol. 2, No. 5, pp. 967 - 973

TEXT: The authors investigated the durability of polymethyl methacrylate samples as dependent on moisture, the action of the scale factor, and the action of heating upon the deformation occurring under the influence of mechanical stress. The samples were subjected to a uniform stress ($\sigma = 5 - 7 \text{ kg/mm}^2$) in a thermostat with regulated air moisture. Fig. 1 shows the dependence of durability for different moisture absorptions by the sample. The maximum moisture content was 1%. By means of the formula $\tau = A \exp(-\alpha\sigma)$ derived by S. N. Zhurkov and B. N. Narzullayev (Ref. 1) $\alpha = 3.3$, $e^\alpha = 26$ were found. Thus, the durability of organic glass containing 1% moisture is reduced to $1/26$. For the purpose of distinguishing whether influence is exerted by the absorbed water or by the moisture present during the tensile test, a series of

Card 1/3

81891

Some Problems of the Time Dependence of the
Strength of Organic Glasses

S/181/60/002/05/30/041
B004/B056

tensile tests was carried out in a vacuum, and a second during the passage of moist air (Fig. 2). The reduction of durability was found to be caused by the absorbed water. Fig. 3 shows that the scale factor (cross section of the samples 10×10 mm and 3×3 mm) does not influence the results of measurement. For the removal of the deformation, the samples subjected to stress were heated to $100-155^{\circ}\text{C}$, after which a renewed tensile test was carried out. A noticeable "recovery" of the sample occurred only when it was heated to 155°C (Fig. 4). In this case, its strength was lower because of the reduced molecular weight. Fig. 5 shows that also gamma-rays bring about recovery by reduction of the molecular weight. Fig. 6 shows the dependence of durability on the duration of heating. During tests carried out in a vacuum, recovery sets in only at 170°C (Fig. 7). Thus, recovery sets in only at temperatures that are considerably higher than the fusion point. The formation of free radicals is assumed such as are formed also by gamma irradiation. The authors thank Academician V. A. Kargin, Professor Ye. V. Kuvshinskiy, and S. N. Zhurkov, Corresponding Member of the AS USSR, for valuable critiques and advice. There are 6 figures and

Card 2/3

Some Problems of the Time Dependence of the
Strength of Organic Glasses

81891
S/181/60/002/05/30/041
B004/B056

3 references: 1 Soviet, 1 British, and 1 Polish.

SUBMITTED: July 6, 1959

LH

Card 3/3

RYLOV, Ye.Ye.; BORT, D.N.; MINSKER, K.S.; KRONMAN, A.G.; TEPLOV, B.F.

Some data on the crystalline polyvinyl chloride structure.
Zhur.strukt.khim. 2 no.5:615-616 S-O '61. (MIRA 14:11)
(Ethylene) (Crystals)

MOROZOV, V.I., SHTARKMAN, B.P., RYLOV, YE.I.

Physicomechanical fundamentals of polymer processing by screwless
extruders.

Report presented at the 13th Conference on high-molecular compounds
Moscow, 8-11 Oct 62

MOROZOV, V.I.; SHTARKMAN, B.P.; RYLOV, Ye.Ye.

Disk extruder. Plast.massy no.4:56-60 '62.
(Molding machines)

(MIRA 15:4)

RYLOV, YE YE.

34990

S/190/62/004/003/010/023

B110/B144

15. 9050

AUTHORS: Minsker, K. S., Kronman, A. G., Teplov, B. F., Rylov, Ye. Ye.,
Bort, D. N.

TITLE: Stereospecific homogeneous vinyl chloride polymerization

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962, 383-388

TEXT: The effect of various polar solvents (nitro compounds, amines, amides, nitriles, ethers, esters, ketones, aldehydes, acids, anhydrides, and heterocyclic compounds) on the polymerization of vinyl chloride (I) was studied to determine the structure of the polymer formed. Polymerization was conducted for 18 hrs between 0 and 60°C in an N₂ atmosphere with radical initiators ($8 \cdot 10^{-4}$ moles/mole of monomer). Films kept at 120°C for 2.5 hrs were used for the electronographic determination of crystallinity. Only few solvents yielded stereoregular PVC structures. Electron diffraction patterns showed four diffuse rings. HCOOH, CH₃COOH, C₂H₅COOH, C₃H₇COOH lead to a higher order of the polymer chain and produce two more diffuse bands of aliphatic aldehydes yielded crystalline PVC. Electron diffraction patterns showed some new lines with $d = 5.07, 5.27$ Å (instead of 5.16);
Card 1/3

S/190/62/004/003/010/023
B110/B144

Stereospecific homogeneous ...

2.52, 2.62 Å (instead of 2.56); 2.26, 2.31 Å (instead of 2.28); 1.74 and 1.69 Å. Low yields and molecular weights suggest: (1) that aldehydes regulate the molecular weight in radical polymerization of I; and (2) chain transfer. CHCl_3 and CHI_3 were used for chain rupture, since the formation of a regular structure is easier at low molecular weights. PVC with the characteristic viscosity of 0.1 was obtained with 1 mole CHCl_3 per monomer-mole. Absence of aldehyde in the system (monomer initiator and aldehyde) leads to amorphous PVC. Substitution of azoisobutyric dinitrile by peroxide initiators yielded poorly crystalline PVC. Peroxide on the basis of butyric aldehyde yielded highly crystalline PVC. Electron diffraction patterns of PVC twice reprecipitated PVC showed further new bands with $d = 1.89, 1.54, \text{ and } 1.44 \text{ Å}$. Free radicals formed by the decomposition of the hydroperoxide group in peracids initiate the radical polymerization of I in the presence of aldehydes so that adding of initiators becomes unnecessary. Complexes of aldehyde and vinyl chloride cause the formation of crystalline PVC. Conclusions. (1) The C=O groups do not affect the crystallinity, since amides, esters, ketones, acids, and anhydrides are ineffective. (2) Regularity (but not crystallinity) is increased in the

Card 2/3

Stereospecific homogeneous ...

S/190/62/004/003/C10/023
B110/B144

systems containing COOH groups. (3) Crystallinity is caused by aliphatic aldehydes only. Stereospecificity is affected by substituents in aldehydes and acids ($(\text{CH}_3)_2\text{CHCHO}$, CCl_3COOH). There are 1 figure and 1 table. The reference to the English-language publication reads as follows: P. H. Burleigh, J. Amer. Chem. Soc., 82, 749, 1960.

SUBMITTED: February 23, 1961

Card 3/3

S/190/62/004/006/024/026
B139/B144

AUTHORS: Bort, D. N., Ovchinnikov, Yu. V., Rylov, Ye. Ye.

TITLE: Molecular ordering in polymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 6, 1962, 935 -
937

TEXT: The degree of molecular ordering in amorphous polymers which have not undergone any treatment such as melting, annealing, or reprecipitation has been compared with that in films prepared by vaporization of solutions of these polymers. PVC was used as experimental material. Electron diffraction photographs were taken of films prepared from 0.1 % solution of PVC in cyclohexanone under the following conditions: a) at room temperature, b) at room temperature followed by annealing at 120°C, and c) at 120°C. Further, electron diffraction photographs were recorded of PVC latex. The occurrence of an additional reflex with $d = 4.65 \text{ \AA}$ on the electron diffraction photograph was adopted as a criterion for the molecular ordering. Films prepared at room temperature and not heated showed the lowest degree of molecular ordering, PVC latex the

Card 1/2

Molecular ordering in polymers

S/190/62/004/006/024/026
B139/B144

highest. The diffraction pattern so obtained enables the structure of the polymer to be determined with maximum approximation only if the films under investigation have been prepared at temperatures above T_c or have afterwards been heated correspondingly. This holds for amorphous polymers as well as crystalline. Crystalline PVC with $T_c = 80^\circ\text{C}$ produces an amorphous pattern, if the film forms at room temperature. If the polymer is reprecipitated for purification, and is X-rayed, the result is a pattern which does not correspond to the structure that existed during the polymerization process. This was established by V. A. Kargin (V. A. Kargin et al. Vysokomolek. soed., 1, 94, 1959) during the investigation of isotactic polystyrene. There are 2 figures. ✓

SUBMITTED: April 25, 1961

Card 2/2

15.8070

39576
S/020/62/145/003/010/013
B101/B144

AUTHORS: Arzhakov, S. A., Rylov, Ye. Ye., Slonimskiy, G. L., and
Shtarkman, B. P.

TITLE: The role of thermal destruction when molding polymethyl methacrylate powder into monolithic solids

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 3, 1962, 595 - 597

TEXT: The authors studied the conditions for the production of molded specimens of polymethyl methacrylate (PMMA) powder which do not lose their transparency when annealed at a temperature 30°C above the vitrification temperature. PMMA specimens were molded at a pressure of 50 kg/cm^2 and a molding temperature (t_m) of $100 - 250^{\circ}\text{C}$. At $t_m \sim 135^{\circ}\text{C}$, the transparency decreased linearly after annealing, at $\sim 180^{\circ}\text{C}$, the specimen became opaque. The molecular weight of PMMA decreased above 130°C owing to thermal destruction, then it reached a minimum in the viscous - liquid state at $170-180^{\circ}\text{C}$ and increased again at $190-230^{\circ}\text{C}$ owing to easier recombination of macroradicals. Above 230°C decomposition of the macromolecules and

Card 1/2